

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	2221	428/694T or 428/694TS or 428/828 or 428/831 or 428/831.2 or 428/836.2 or 428/611	US-PGPUB; USPAT	OR	OFF	2005/10/12 14:56
L2	31	l1 and perpendicular and "magnetic recording" and (second with (undercoat or undercoating or underlayer)) and (grains and boundary and carbide)	US-PGPUB; USPAT	OR	ON	2005/10/12 15:47
S1	3	perpendicular and "magnetic recording" and (second with (undercoat or undercoating or underlayer)) and (crystal same (grains and boundary and carbide))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2005/10/03 15:22
S2	8	perpendicular and "magnetic recording" and (undercoat or undercoating or underlayer) and (crystal same (grains and boundary and carbide))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2005/10/03 15:40
S3	5	S2 not S1	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2005/10/03 15:22
S4	16	"magnetic recording" and (undercoat or undercoating or underlayer) and (crystal same (grains and boundary and carbide))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2005/10/03 15:42
S5	8	S4 not S2	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2005/10/03 16:50
S6	8	("0224865" or "0725") and Watanabe	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2005/10/03 16:52
S7	0	("0210701" or "0706") and Nakazawa	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2005/10/03 16:53
S8	7	2002-025030	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2005/10/03 16:54
S9	1	2003-036525	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2005/10/03 16:55

S10	2563	watanabe and sakai	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2005/10/03 16:55
S11	0	S1 and fuji and "perpendicular magnetic"	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2005/10/03 16:56
S12	43	S10 and fuji and "perpendicular magnetic"	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2005/10/03 16:56
S13	17	S12 and crystal	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2005/10/03 16:57
S14	6	S13 and oxide	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2005/10/03 17:39
S15	9	"151204" and magnetic	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2005/10/03 19:16
S16	36	"5792564" or "5942342"	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2005/10/03 20:57
S17	7	("5792564" or "5942342") and carbide	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2005/10/03 20:57
S18	3	"2005006310"	DERWENT	OR	OFF	2005/10/06 15:03
S19	3	"2004038083"	US-PGPUB; DERWENT	OR	OFF	2005/10/06 15:03
S20	0	"2004038083"	US-PGPUB	OR	OFF	2005/10/06 15:03
S21	1	"20040038083"	US-PGPUB	OR	OFF	2005/10/06 15:04
S22	6	"6231968"	US-PGPUB; USPAT	OR	OFF	2005/10/06 15:06
S23	0	S22 and carbonate	US-PGPUB; USPAT	OR	OFF	2005/10/06 15:05
S24	0	"2002136926"	US-PGPUB; USPAT	OR	OFF	2005/10/06 15:06
S25	1	"20020136926"	US-PGPUB; USPAT	OR	OFF	2005/10/06 15:07
S26	14	"5759681"	US-PGPUB; USPAT	OR	OFF	2005/10/06 15:07

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**Magnetic recording medium, has base layer containing crystal formed with separated layer of crystal grain containing oxide or nitride types in its boundary**  
**Patent Assignee: FUJI ELECTRIC CO LTD**

**Patent Family**

Patent Number	Kind	Date	Application Number	Kind	Date	Week	Type
JP 2003036525	A	20030207	JP 2001224865	A	20010725	200345	B

**Priority Applications (Number Kind Date):** JP 2001224865 A ( 20010725)

**Patent Details**

Patent	Kind	Language	Page	Main IPC	Filing Notes
JP 2003036525	A		7	G11B-005/738	

**Abstract:**

JP 2003036525 A

**NOVELTY** The magnetic recording medium is formed by laminating at least a base layer (12), a magnetic recording layer (13), protective coat (14) and a lubricant layer (15), orderly on a non-magnetic base material (11). A separated layer of crystal grain which contains at least one or more types of oxide or nitride, is formed in the crystal grain boundary of the crystal which comprises the base layer.

**DETAILED DESCRIPTION** A non-magnetic intermediate layer provided between base layer and magnetic recording layer, comprises at least one or more types of inner metal or inner alloy of cobalt-chromium, cobalt-chromium-boron, cobalt-chromium-ruthenium, ruthenium, ruthenium-tungsten, ruthenium-copper, ruthenium-carbon, palladium.

An **INDEPENDENT CLAIM** is included for manufacture of the magnetic recording medium. The crystal grain in the separated layer which contains one or more types of oxide or nitride, is chosen from aluminum oxide (Al<sub>2</sub>O<sub>3</sub>), beryllium oxide (BeO<sub>2</sub>), chromium oxide (Cr<sub>2</sub>O<sub>3</sub>), magnesium oxide (MgO), silicon oxide (SiO<sub>2</sub>), titanium oxide (TiO<sub>2</sub>), thorium oxide (ThO<sub>2</sub>), zirconium oxide (ZrO<sub>2</sub>), cerium oxide (CeO<sub>2</sub>), yttrium oxide (Y<sub>2</sub>O<sub>3</sub>), silicon nitride (SiN), titanium nitride (TiN), aluminum nitride (AlN), zirconium nitride (ZrN), niobium nitride (NbN), chromium nitride (Cr<sub>2</sub>N), boron nitride (BN), chromium-molybdenum nitride (CrMoN<sub>2</sub>), hafnium nitride (HfN), vanadium nitride (VN), tantalum nitride (TaN) and chromium nitride (CrN).

**USE** As magnetic recording medium.

**ADVANTAGE** Micronization and separation of crystal grain of magnetic recording layer formed on the base layer, are enabled and the magnetic recording medium with reduced magnetic interaction between crystal grains is obtained.

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**Magnetic recording medium e.g. magnetic disk has grain boundary layer between orientation control film and magnetic layer, whose width is controlled based on ratio of particle diameter of control film and magnetic layer**

**Patent Assignee: HITACHI LTD; HITACHI MAXELL KK**

#### Patent Family

Patent Number	Kind	Date	Application Number	Kind	Date	Week	Type
JP 2002025030	A	20020125	JP 2000210701	A	20000706	200236	B

**Priority Applications (Number Kind Date):** JP 2000210701 A ( 20000706)

#### Patent Details

Patent	Kind	Language	Page	Main IPC	Filing Notes
JP 2002025030	A		12	G11B-005/65	

#### Abstract:

JP 2002025030 A

NOVELTY Orientation control film (3) and magnetic layer (4) formed sequentially on soft magnetic film (2) contain oxides, nitrides and borides of I-V group elements of periodic table. The width of the grain boundary layer formed between the orientation control film and magnetic layer, is controlled based on ratio of particle diameter of the orientation control film and magnetic layer.

DETAILED DESCRIPTION INDEPENDENT CLAIMS are also included for the following:

(a) Magnetic recording medium manufacturing method;

(b) Magnetic recording device

USE In magnetic recording device (claimed) such as magnetic disk drive.

ADVANTAGE Enables suppression of temperature fluctuation and demagnetization, reliably. High density recording is performed, as crystal orientation property of magnetic layer is controlled.

DESCRIPTION OF DRAWING(S) The figure shows a sectional view of the magnetic recording medium. (Drawing includes non-English language text).

Soft magnetic film (2)

Orientation control film (3)

Magnetic layer (4)